



Standard Operating Procedure

Procedure Number: SOP-06-001 Date: 27 March 2006

Procedure Title: Upgrading or Installing a New Water Level Station

System: Xpert, XDark and 9210 Data Collection Platforms

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On March 27, 2006 the MSCB approved a new SOP for the testing and installing of a new water level station which include Sutron Xpert series of DCPs. This procedure shall be used for all new stations and when a station is being upgraded. This SOP is applicable until the Electronic Site Report becomes operational and will be modified as needed.

Tester is defined as a person or organization that assembles the whole system and performs testing. At the present time, Testers are, the RDD instrument lab (east coast), FOD instrument lab (west coast), and instrument lab contract support (presently RDSI).

Installer is defined as a person or a team - both government and contractors - who performs annual maintenance, emergency maintenance, DCP upgrade, or installation of a new water level station.

(1) The Tester shall request assignment of transmissions parameters - platform-id, channel, and transmit time - from OET, at least 2 weeks before the beginning of the test. OET will assign the transmission parameters and provide the information to the requester.

(2) For a new station, Installer/Tester shall request a new station number from OET by providing the position information - latitude and longitude - of the new station to OET. OET will assign the new station number and inform the Installer/Tester.

(3) The Tester(s) shall submit the approved preliminary Xpert Site Report by completing the following fields:

(a) the station name, station ID number;

(b) the transmission parameters (correct assigned plat-id, channel, and transmit time);

(c) the serial numbers of all boards and equipment as listed on the approved Site Report for the DCPs that will be installed/upgraded in the field;

(d) the correct number, type, and serial numbers of the sensors that will be installed on each DCP;

(e) the sensor offset for the acoustic sensor.

(4) The Tester shall provide the approved preliminary Xpert Site Report to OET at least 3 days prior to the beginning of the test so that the station information can be configured in the DMS.

(5) During the testing phase, Tester shall use the exact equipment that will be installed in the field, so that any problems can be identified and rectified prior to the installation. Instead of using the actual station id, the tester shall use the test station id and the assigned transmissions parameters for the testing purposes. OET has provided the test station numbers to the Testers and Installers.

(6) OET shall configure the test station and will inform the Tester that the station is ready to be tested.

(7) Once the data is transmitted properly, OET will check the data in the DMS, and OET will inform the Tester that the test is complete and equipment is ready to be shipped to the field for the upgrade/installation. Tester shall also access the CO-OPS website to check the status of the transmissions and sensor data.

(8) Tester shall change the test station number to the correct station number in the DCP before the equipment is shipped to the Installer.

(9) Tester shall provide the preliminary Site Report and the data results from the end to end test to the Installer.

(10) For contract installations, contractor shall perform a pre-deployment bench test of fully assembled and configured system to verify the operation of appropriate systems and sensors prior to the deployment in the field. CO-OPS shall make available to the contractor the decoder software to decode the raw satellite messages as an additional resource.

Contractor shall also access the CO-OPS website to check the status of the transmissions and sensor data. Contractors shall do this pre-deployment bench testing to ensure that there has been no damage to the equipment during the shipment from Tester to the contractor.

Contractor shall ensure that all equipment is functioning properly prior to the transportation to the field.

(11) Installer shall provide a schedule for the upgrade/installation to OET at least a week prior to the upgrade/installation.

(12) For upgrades, Installer shall inform the CORMS, a few hours prior to the beginning of the upgrade, so that CORMS can notify appropriate personnel and stop the dissemination of data

over the web, as appropriate.

(13) When in the field, Installer shall communicate with OET via a telephone call (and a follow-up e-mail to document the conversations, actions and results):

(a) If the tested equipment can not be used because it was damaged during shipping or a spare sensor/equipment will be used for a valid reason, then new serial number of the equipment and sensor offset shall be provided to OET.

(b) when the old 9000 DCP and 8200 backup DCP are taken down.

(c) when the Sutron Xpert DCP and Xpert Dark DCP are installed along with the proper sensors.

(d) Installer confirms Sensor Offset (SNS or C1) and Datum Offset (DAT or C2) for acoustic primary sensors, or Accepted Orifice Offset for single/dual orifice primary ParoScientific sensors, or Accepted Datum Offset for the Great Lakes stations, and provides the leveling abstract.

(e) OET will check the data transmissions from the primary and redundant DCPs and installed sensors in DMS with the predicted data, if available, and shall inform the Installer if there are any problems/issues, etc.

(f) Installer shall resolve the problems/issues as discussed with OET, and then OET will inform the Installer that all the data is good. If some problems can not be resolved, OET will advise the installer the course of actions needed for the resolution.

(g) Installer must not leave the station till OET informs the Installer that all DCPs and sensors are collecting good, valid, and continuous data.

(14) OET shall designate station as operational and informs appropriate personnel and organizations including CORMS. In the case of a tsunami station, OET (Manoj) informs NWS that station is designated as "Tsunami Ready", and POC (Rolin) informs ATWC and PTWC that station is designated as "Tsunami Ready".

(15) After notification, CORMS shall resume the dissemination of the data over the web.

(16) Installer shall provide the required documentation in a timely fashion as listed in the contract documents and the Standing Project Instructions.

(17) New installations and upgrades are encouraged to be done on the weekdays and are generally not recommended for weekends. But if an upgrade or a new installation needs to be done on the weekend, then OET shall configure most of the information prior to the weekend, and Installer shall call CORMS to make the switch during the weekend. In that case, the first business day after the weekend/holiday, OET will check the station, complete the configuration of datum offset, communicate with the Installer, and then designate the station as operational. Stations where acoustic sensors are switched to ParoScientific pressure sensors or vice a versa,

or complex installation shall not be done on the weekends as the CORMS weekend switch procedure can not handle these types of upgrades/installations on the weekends and OET intervention is necessary for these types.

Installer shall provide the appropriate and necessary information to the CORMS operator in case the upgrade/installation is done over the weekend. Installer shall provide (a) the station name and number (b) the assigned transmissions parameters - platform id, channel, and transmit time (c) Parameter value (as defined below) to the CORMS in the case of a weekend upgrade/installation. The sensor offset value (-0.xxx in meters) is the Parameter value required for a primary acoustic sensor. The Accepted Datum Offset value (xx.xxx in meters) is the Parameter value required for a Great Lakes station. The Accepted Orifice Offset(s) for N1 sensor (+/-xx.xxx in meters) is the Parameter value required for a single orifice station. The Accepted Orifice Offsets for N1 and T1 (+/- xx.xxx in meters) are the Parameter values required for a dual orifice station.

This completes the upgrade/installation of a new tide/ water level station.

Acronyms:

NOAA – National Oceanic and Atmospheric Administration
NOS – NOAA National Ocean Service
NWS – NOAA National Weather Service
CO-OPS – Center for Operational Oceanographic Products and Services
SOP – Standard Operating Procedures
MSCB – CO-OPS Measurement Systems Configuration Board
RDD – CO-OPS Requirements and Development Division
FOD – CO-OPS Field Operations Division
RDSI – Research and Development Solutions, Inc.
DCP – Data Collection Platform
OET - CO-OPS/RDD Operational Engineering Team
DMS – Database Management System
CORMS – CO-OPS Continuous Operational Real-Time Monitoring System
POC – Point of Contact
ATWC – NOAA/NWS Alaska Tsunami Warning Center
PTWC – NOAA/NWS Pacific Tsunami Warning Center